

SECTION 09255 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Non-load-bearing steel framing members for gypsum board assemblies.
 - 2. Gypsum board assemblies attached to steel framing.
 - 3. Glass-mat, water-resistant gypsum backing board installed with gypsum board assemblies.
 - 4. Security mesh panels installed behind gypsum board finishes.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 5 Section "Cold-Formed Metal Framing" for load-bearing steel framing.

1.3 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 ASSEMBLY PERFORMANCE REQUIREMENTS



- A. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
- B. Fire Resistance: Provide gypsum board assemblies with fire-resistance ratings indicated.

1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified.
- C. Shop Drawings showing locations, fabrication, and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other units of Work.
- D. Product certificates signed by manufacturers of gypsum board assembly components certifying that their products comply with specified requirements.

1.6 QUALITY ASSURANCE

- A. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer, unless otherwise indicated.
- B. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.

-
- C. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.
 - D. Fire-Test-Response Characteristics: Where fire-resistance-rated gypsum board assemblies are indicated, provide gypsum board assemblies that comply with the following requirements:
 - 1. Fire-Resistance Ratings: As indicated by GA File Numbers in GA-600 "Fire Resistance Design Manual" or design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 2. Deflection and Firestop Track: Top runner provided in fire-resistance-rated assemblies indicated is labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.

1.8 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 requirements or gypsum board manufacturer's recommendations, whichever are more stringent.



-
- B. Room Temperatures: For non-adhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours before application and continuously after until dry. Do not exceed 95 deg F (35 deg C) when using temporary heat sources.
- C. Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to:
1. Steel Framing and Furring:
 - a. Dale Industries, Inc.
 - b. National Gypsum Co.; Gold Bond Building Products Division.
 - c. Unimast, Inc.
 2. Grid Suspension Assemblies:
 - a. Armstrong World Industries, Inc.
 - b. Chicago Metallic Corp.
 - c. USG Interiors, Inc.
 3. Gypsum Board and Related Products:
 - a. Georgia-Pacific Corp.
 - b. National Gypsum Co.; Gold Bond Building Products Division.
 - c. United States Gypsum Co.
 4. Steel Security Mesh Panels:
 - a. AMICO Security Mesh by Alabama Metal Industries, Inc.



-
- B. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work where proprietary gypsum wallboard is indicated include:
1. Firestop Type C; Georgia-Pacific Corp.
 2. Fire-Shield G; National Gypsum Co.; Gold Bond Building Products Division.
 3. SHEETROCK Brand Gypsum Panels, FIRECODE C Core; United States Gypsum Co.

2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

- A. General: Provide components complying with ASTM C 754 for conditions indicated.
- B. Wire Ties: **ASTM A 641 (ASTM A 641M)**, Class 1 zinc coating, soft temper, **0.062 inch (1.6 mm)** thick.
- C. Wire Hangers: **ASTM A 641 (ASTM A 641M)**, Class 1 zinc coating, soft temper, **0.162-inch (4-mm)** diameter.
- D. Hanger Rods: Mild steel and zinc coated or protected with rust-inhibitive paint.
- E. Flat Hangers: Mild steel and zinc coated or protected with rust-inhibitive paint.
- F. Angle-Type Hangers: Angles with legs not less than **7/8 inch (22 mm)** wide, formed from **0.0635-inch- (1.6-mm-)** thick galvanized steel sheet complying with **ASTM A 653, G 90 (ASTM A 653M, Z 180)** coating designation, with bolted connections and **5/16-inch (8-mm)** diameter bolts.
- G. Channels: Cold-rolled steel, **0.0598-inch (1.5-mm)** minimum thickness of base (uncoated) metal and **7/16-inch- (11-mm-)** wide flanges, and as follows:
1. Carrying Channels: **1-1/2 inches (38 mm)** deep, **475 lb/1000 feet (70 kg/100 m)**, unless otherwise indicated.

-
2. Furring Channels: **3/4 inch (19 mm)** deep, **300 lb/1000 feet (45 kg/100 m)**, unless otherwise indicated.
 3. Finish: Rust-inhibitive paint, unless otherwise indicated.
 4. Finish: **ASTM A 653, G 60 (ASTM A 653M, Z 180)** hot-dip galvanized coating for framing for exterior soffits.
- H. Steel Studs for Furring Channels: ASTM C 645, with flange edges of studs bent back 90 degrees and doubled over to form **3/16-inch- (5-mm-)** wide minimum lip (return), and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
1. Thickness: As indicated.
 2. Depth: As indicated.
 3. Protective Coating: **ASTM A 653, G 40 (ASTM A 653M, Z 90)** hot-dip galvanized coating.
- I. Steel Rigid Furring Channels: ASTM C 645, hat shaped, depth of **7/8 inch (22 mm)**, and minimum thickness of base (uncoated) metal as follows:
1. Thickness: As indicated.
 2. Protective Coating: **ASTM A 653, G 40 (ASTM A 653M, Z 90)** hot-dip galvanized coating.
- J. Steel Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet complying with **ASTM A 653 (ASTM A 653M)** or **ASTM A 568 (ASTM A 568M)** to form **1/2-inch- (13-mm-)** deep channel of the following configuration:
1. Single- or Double-Leg Configuration: Asymmetric-shaped channel with face connected to a single flange by a single-slotted leg (web) or hat-shaped channel, with **1-1/2-inch- (38-mm-)** wide face connected to flanges by double-slotted or expanded-metal legs (webs).
- K. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung grid suspension system composed of main beams and cross-furring members that interlock to form a modular supporting network.



-
- L. Expanded Steel Mesh Panels for Security Partitions and Ceilings: Manufacturer's standard steel mesh panels made from simultaneously cutting and stretching a solid steel sheet containing a maximum carbon content of 0.15% per ASTM F 1267

2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. General: Provide steel framing members complying with the following requirements:
1. Protective Coating: **ASTM A 653, G 40 (ASTM A 653M, Z 90)** hot-dip galvanized coating.
- B. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 degrees and doubled over to form **3/16-inch- (5-mm-)** wide minimum lip (return), and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
1. Thickness: **0.0179 inch (0.45 mm)**, unless otherwise indicated.
 2. Depth: **3-5/8 inches (92 mm)**, unless otherwise indicated.
- C. Deflection Track: Manufacturer's standard top runner designed to prevent cracking of gypsum board applied to interior partitions resulting from deflection of the structure above fabricated from steel sheet complying with **ASTM A 653 (ASTM A 653M)** or **ASTM A 568 (ASTM A 568M)**. Thickness as indicated for studs, and width to accommodate depth of studs, and of the following configuration:
1. Top runner with **2-1/2-inch- (65-mm-)** deep flanges that either have V-shaped offsets that compress when pressure is applied from construction above or have slots **1 inch (25 mm)** o.c. that allow fasteners attached to studs through the slots to accommodate structural movement by slipping.
 - a. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
 - 1) Superior Flex Track System (SFT); Delta Star, Inc.

2) SLP-TRK; Metal-Lite, Inc.

- D. Deflection and Firestop Track: Top runner designed to allow partition heads to expand and contract with movement of structure above while maintaining continuity of the assembly. Comply with requirements of ASTM C 645 except configuration, of thickness indicated for studs and width to accommodate depth of studs indicated with flanges offset at midpoint to accommodate gypsum board thickness.
1. Offset Configuration: Shadow-line design with offset projecting out from depth of stud.
 2. Available Product: Subject to compliance with requirements, a product that may be incorporated in the Work includes, but is not limited to, "Fire Trak" manufactured by Fire Trak Corp.
- E. Steel Rigid Furring Channels: ASTM C 645, hat shaped, depth and minimum thickness of base (uncoated) metal as follows:
1. Thickness: 0.0179 inch (0.45 mm), unless otherwise indicated.
 2. Depth: 7/8 inch (22 mm).
- F. Steel Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet complying with ASTM A 653 (ASTM A 653M) or ASTM A 568 (ASTM A 568M) to form 1/2-inch- (13-mm-) deep channel of the following configuration:
1. Single- or Double-Leg Configuration: Asymmetric-shaped channel with face connected to a single flange by a single-slotted leg (web) or hat-shaped channel, with 1-1/2-inch- (38-mm-) wide face connected to flanges by double-slotted or expanded-metal legs (webs).
- G. Z-Furring Members: Manufacturer's standard Z-shaped furring members with slotted or nonslotted web, fabricated from steel sheet complying with ASTM A 653 (ASTM A 653M) or ASTM A 568 (ASTM A 568M); with a minimum base metal (uncoated) thickness of 0.0179 inch (0.45 mm), face flange of 1-1/4 inch (32 mm), wall-attachment flange of 7/8 inch (22 mm), and of depth required to fit insulation thickness indicated.



-
- H. Steel Channel Bridging: Cold-rolled steel, 0.0598-inch (1.5-mm) minimum thickness of base (uncoated) metal and 7/16-inch- (11-mm-) wide flanges, 1-1/2 inches (38 mm) deep, 475 lb/1000 feet (45 kg/100 m), unless otherwise indicated.
 - I. Steel Flat Strap and Backing Plate: Steel sheet for blocking and bracing complying with ASTM A 653 (ASTM A 653M) or ASTM A 568 (ASTM A 568M), length and width as indicated, and with a minimum base metal (uncoated) thickness of 0.0179 inch (0.45 mm).
 - J. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.
 - K. Security Mesh: For walls and ceilings surrounding the Pharmaceutical storage areas, provide security mesh backing to drywall installations, complying with ASTM F1267, Type II, Class 1, 2, and 3, grade A mesh requirements.

2.4 GYPSUM BOARD PRODUCTS

- A. General: Provide gypsum board of types indicated in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application.
 - 1. Widths: Provide gypsum board in widths of 48 inches (1220 mm).
- B. Gypsum Wallboard: ASTM C 36 and as follows:
 - 1. Type: Type X.
 - 2. Type: Sag-resistant type for ceiling surfaces.
 - 3. Type: Proprietary type as required for specific fire-resistance-rated assemblies.
 - 4. Edges: Tapered.
 - 5. Thickness: 5/8 inch (16 mm) unless otherwise indicated.



-
- C. Gypsum Board Base Layer(s) for Multilayer Applications: Gypsum wallboard, ASTM C 36, and as follows:
1. Type: Proprietary type matching that indicated for face layer and as required for specific fire-resistance-rated assemblies.
 2. Edges: Manufacturer's standard.
 3. Thickness: 5/8 inch (16 mm), unless otherwise indicated.
- D. Exterior Gypsum Soffit Board: ASTM C 931, with manufacturer's standard edges, of type and thickness indicated below:
1. Type: Type X.
 2. Thickness: 5/8 inch (16 mm), unless otherwise indicated.
- E. Water-Resistant Gypsum Backing Board: ASTM C 630 and as follows:
1. Type: Type X.
 2. Thickness: 5/8 inch (16 mm), unless otherwise indicated.
- F. Glass-Mat, Water-Resistant Gypsum Backing Board: ASTM C 1178, of type and thickness indicated below:
1. Type and Thickness: Type X, 5/8 inch (16 mm) thick, unless otherwise indicated.
 2. Available Product: Subject to compliance with requirements, a product that may be incorporated in the Work includes, but is not limited to, "Dens-Shield Tile Backer" manufactured by Georgia-Pacific Corp.

2.5 TRIM ACCESSORIES

- A. Accessories for Interior Installation: Cornerbead, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
1. Steel sheet zinc coated by hot-dip or electrolytic process, or steel sheet coated with aluminum or rolled zinc.
 2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
 - a. Cornerbead on outside corners, unless otherwise indicated.

-
- b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim, unless otherwise indicated.
 - c. One-piece control joint formed with V-shaped slot and removable strip covering slot opening.
 - B. Accessories for Exterior Installations: Cornerbead, edge trim, and control joints formed from steel sheet zinc coated by hot-dip process or rolled zinc complying with ASTM C 1047, in shapes indicated below by reference to Fig. 1 designations in ASTM C 1047.
 - 1. Cornerbead on outside corners, unless otherwise indicated.
 - 2. Edge trim complying with shape LC-bead per Fig. 1, unless otherwise indicated.
 - 3. One-piece control joint formed from rolled zinc with V-shaped slot and removable strip covering slot opening.
 - C. Aluminum Accessories: Where indicated, provide manufacturer's standard extruded-aluminum accessories of profile indicated complying with the following requirements:
 - 1. Aluminum Alloy: Alloy and temper recommended by aluminum producer and finisher for type of finish indicated and with not less than the strength and durability properties of aluminum extrusions complying with **ASTM B 221** (**ASTM B 221M**) for alloy and temper 6063-T5.
 - 2. Class II, Color Anodic Finish: AA-C12C22A32/A34 (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, integrally colored or electrolytically deposited color and a minimum coating thickness of 0.01 mm.
 - a. Color: As selected.
 - 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering aluminum accessories that may be incorporated in the Work include, but are not limited to, the following:
 - a. Fry Reglet Corp.
 - b. Gordon, Inc.
 - c. MM Systems, Inc.
-

2.6 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.
 - 1. Use pressure-sensitive or staple-attached, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.
- C. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
 - 1. For prefilling gypsum board joints, use formulation recommended by gypsum board manufacturer.
 - 2. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer.
 - 3. For topping compound, use sandable formulation.
- D. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
 - 1. Ready-Mixed Formulation: Factory-mixed product.
 - a. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
 - b. Topping compound formulated for fill (second) and finish (third) coats.
 - c. All-purpose compound formulated for both taping and topping compounds.

2.7 ACOUSTICAL SEALANT



-
- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:
1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- B. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.
- C. Available Products: Subject to compliance with requirements, acoustical sealants that may be incorporated in the Work include, but are not limited to, the following:
1. Acoustical Sealant for Exposed and Concealed Joints:
 - a. PL Acoustical Sealant; ChemRex, Inc.; Contech Brands.
 - b. AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
 - c. SHEETROCK Acoustical Sealant; United States Gypsum Co.
 2. Acoustical Sealant for Concealed Joints:
 - a. BA-98; Pecora Corp.
 - b. Tremco Acoustical Sealant; Tremco, Inc.

2.8 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
- B. Steel drill screws complying with ASTM C 1002 for fastening gypsum board to steel members less than 0.033 inch (0.8 mm) thick.



-
- C. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch (0.8 to 2.8 mm) thick.
 - D. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
 - E. Sound-Attenuation Blankets: Unfaced mineral-fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing).
 - 1. Mineral-Fiber Type: Fibers manufactured from slag wool or rock wool.
 - F. Thermal Insulation: Material indicated below:
 - 1. Unfaced Mineral-Fiber Blanket Insulation: Unfaced mineral-fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing).
 - a. Mineral-Fiber Type: Fibers manufactured from glass.
 - b. Flame-spread and smoke-developed ratings of 75 and 450, respectively, according to ASTM E 84.
 - G. Polyethylene Vapor Retarder: ASTM D 4397, thickness and maximum permeance rating:
 - 1. 6 mils (0.15 mm), 0.13 perms (7.5 ng/Pa x s x sq. m).
 - H. Vapor Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 - EXECUTION

3.1 EXAMINATION



-
- A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Ceiling Anchorage: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorage to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.
- B. Before sprayed-on fireproofing is applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed-on fireproofing. Where offset anchor plates are required, provide continuous units fastened to building structure not more than 24 inches (600 mm) o.c.
- C. After sprayed-on fireproofing has been applied, remove only as much fireproofing as needed to complete installation of gypsum board assemblies without reducing thickness of fireproofing below that is required to obtain fire-resistance rating indicated. Protect remaining fireproofing from damage.

3.3 INSTALLING STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or,

if none available, with United States Gypsum Co.'s "Gypsum Construction Handbook."

- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings.
 - 1. Where partition framing and wall furring abut structure, except at floor.
 - a. Install deflection track top runner to attain lateral support and avoid axial loading.
 - b. Install deflection and firestop track top runner at fire-resistance-rated assemblies where indicated.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.

3.4 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

- A. Suspend ceiling hangers from building structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 - 3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are se-



-
- cure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
4. Secure flat, angle, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or otherwise fail.
 5. Do not attach hangers to steel deck tabs.
 6. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- B. Sway-brace suspended steel framing with hangers used for support.
- C. Install suspended steel framing components in sizes and at spacings indicated, but not less than that required by the referenced steel framing installation standard.
1. Wire Hangers: 48 inches (1220 mm) o.c.
 2. Carrying Channels (Main Runners): 48 inches (1220 mm) o.c.
 3. Furring Channels (Furring Members): 16 inches (400 mm) o.c.
- D. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring or grid suspension members are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) as measured both lengthwise on each member and transversely between parallel members.
- E. Wire-tie or clip furring members to main runners and to other structural supports as indicated.
- F. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. For exterior soffits, install cross-bracing and additional framing to resist wind uplift.

3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS



-
- A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
 - 1. Where studs are installed directly against exterior walls, install asphalt felt strips or foam gaskets between studs and wall.
 - B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than **1/8 inch (3 mm)** from the plane formed by the faces of adjacent framing.
 - C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
 - 1. For STC-rated and fire-resistance-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed, to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.
 - D. Terminate partition framing at suspended ceilings where indicated.
 - E. Install steel studs and furring in sizes and at spacings indicated.
 - 1. Space studs **16 inches (400 mm)** o.c., unless otherwise indicated.
 - F. Install steel studs so flanges point in the same direction and leading edge or end of each gypsum board panel can be attached to open (unsupported) edges of stud flanges first.
 - G. Frame door openings to comply with GA-219, and with applicable published recommendations of gypsum board manufacturer, unless otherwise indicated. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - 1. Install 2 studs at each jamb, unless otherwise indicated.
-



-
2. Install cripple studs at head adjacent to each jamb stud, with a minimum **1/2-inch (13-mm)** clearance from jamb stud to allow for installation of control joint.
 3. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- H. Frame openings other than door openings to comply with details indicated or, if none indicated, as required for door openings. Install framing below sills of openings to match framing required above door heads.
- I. Install thermal insulation as follows:
1. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw attach short flange of furring channel to web of attached channel. Start from this furring channel with standard width insulation panel and continue in regular manner. At interior corners, space second member no more than **12 inches (300 mm)** from corner and cut insulation to fit.
 2. Until gypsum board is installed, hold insulation in place with **10-inch (250-mm)** staples fabricated from **0.0625-inch (1.6-mm)** diameter tie wire and inserted through slot in web of member.
- J. Install polyethylene vapor retarder to comply with the following requirements:
1. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with mechanical fasteners or adhesives. Extend vapor retarder to cover miscellaneous voids in insulated substrates, including those filled with loose mineral-fiber insulation.
 2. Seal vertical joints in vapor retarders over framing by lapping not less than 2 wall studs. Fasten vapor retarders to framing at top, end, and bottom edges, at perimeter of wall openings, and at lap joints; space fasteners **16 inches (400 mm)** o.c.
 3. Seal joints in vapor retarders caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor retarder tape.
 4. Repair any tears or punctures in vapor retarder immediately before concealing it with the installation of gypsum board or other construction.
-

3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.
- B. Install sound-attenuation blankets, where indicated, prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than **1/16 inch (2 mm)** of open space between panels. Do not force into place.
- E. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Avoid joints other than control joints at corners of framed openings where possible.
- F. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- G. Attach gypsum panels to framing provided at openings and cutouts.
- H. Form control and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
- I. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases that are braced internally.



-
1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
 2. Fit gypsum panels around ducts, pipes, and conduits.
 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by joists, and other structural members; allow 1/4- to 3/8-inch- (6- to 10-mm-) wide joints to install sealant.
- J. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4- to 1/2-inch- (6- to 13-mm-) wide spaces at these locations and trim edges with edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- K. Where STC-rated gypsum board assemblies are indicated, seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of the partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- L. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.
1. Space screws a maximum of 12 inches (300 mm) o.c. for vertical applications.
- M. Space fasteners in panels that are tile substrates a maximum of 8 inches (200 mm) o.c.

3.7 GYPSUM BOARD APPLICATION METHODS



-
- A. Single-Layer Application: Install gypsum wallboard panels as follows:
1. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints.
 - a. At high walls, install panels horizontally.
- B. Wall Tile Substrates: For substrates indicated to receive thin-set ceramic tile and similar rigid applied wall finishes, comply with the following:
1. Install glass-mat, water-resistant gypsum backing board panels to comply with manufacturer's installation instructions at locations indicated to receive wall tile. Install with **1/4-inch (6-mm)** open space where panels abut other construction or penetrations.
 2. Install gypsum wallboard panels with tapered edges taped and finished to produce a flat surface except at locations indicated to receive water-resistant panels.
- C. Multilayer Application on Ceilings: Apply gypsum board indicated for base layers prior to applying base layers on walls/partitions; apply gypsum wallboard face layers in same sequence. Offset face-layer joints one framing member, **16 inches (400 mm)** minimum, from parallel base-layer joints. Apply base layers at right angles to framing members, unless otherwise indicated.
- D. Multilayer Application on Partitions/Walls: Apply gypsum board indicated for base layers and gypsum wallboard face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints. Stagger joints on opposite sides of partitions.
- E. Acoustical Tile Base: Where gypsum panels form the base for adhesively applied acoustical tile, install gypsum wallboard panels with tapered edges taped and finished to produce a flat surface.
-

-
- F. Single-Layer Fastening Methods: Fasten with screws.
 - G. Multilayer Fastening Methods: Fasten both base layers and face layers separately to supports with screws.
 - H. Exterior Soffits and Ceilings: Apply exterior gypsum soffit board panels perpendicular to supports, with end joints staggered over supports.
 - 1. Install with 1/4-inch (6-mm) open space where panels abut other construction or structural penetrations.
 - 2. Fasten with corrosion-resistant screws.

3.8 INSTALLING TRIM ACCESSORIES

- A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
- B. Install cornerbead at external corners.
- C. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
 - 1. Install aluminum trim and other accessories where indicated.
- D. Install control joints at locations indicated.
- E. Install control joints according to ASTM C 840 and manufacturer's recommendations and in specific locations approved for visual effect.

3.9 FINISHING GYPSUM BOARD ASSEMBLIES



-
- A. General: Treat gypsum board joints, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.
 - B. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.
 - C. Apply joint tape over gypsum board joints and to flanges of trim accessories as recommended by trim accessory manufacturer.
 - D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
 - 1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
 - 2. Level 2 where panels form substrates for tile and where indicated.
 - 3. Level 4 for gypsum board surfaces, unless otherwise indicated.
 - E. Use one of the following joint compound combinations as applicable to the finish level:
 - 1. Embedding and First Coat: Setting-type joint compound. Fill (Second) Coat: Setting-type joint compound. Finish (Third) Coat: Sandable, setting-type joint compound.
 - 2. Embedding and First Coat: Setting-type joint compound. Fill (Second) Coat: Setting-type joint compound. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
 - F. For Level 4 gypsum board finish, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration.
 - G. Where Level 2 gypsum board finish is indicated, embed tape in joint compound and apply first coat of joint compound.
-

-
- H. Where Level 1 gypsum board finish is indicated, embed tape in joint compound.
 - I. Finish exterior gypsum soffit board using setting-type joint compounds to prefill joints and embed tape, and for first, fill (second), and finish (third) coats, with the last coat being a sandable product. Smooth each coat before joint compound hardens to minimize need for sanding. Sand between coats and after finish coat.
 - 1. Paint exterior gypsum soffit board after finish coat has dried.
 - J. Finish glass-mat, water-resistant gypsum backing board to comply with gypsum board manufacturer's directions.

3.10 FIELD QUALITY CONTROL

- A. Above-Ceiling Observation: Government will conduct an above-ceiling observation prior to installation of gypsum board ceilings and report any deficiencies in the Work observed. Do not proceed with installation of gypsum board to ceiling support framing until deficiencies have been corrected.
 - 1. Notify Government one week in advance of the date and the time when the Project, or part of the Project, will be ready for an above-ceiling observation.
 - 2. Prior to notifying Government, complete the following in areas to receive gypsum board ceilings:
 - a. Installation of 80 percent of lighting fixtures, powered for operation.
 - b. Installation, insulation, and leak and pressure testing of water piping systems.
 - c. Installation of air duct systems.
 - d. Installation of air devices.
 - e. Installation of mechanical system control air tubing.
 - f. Installation of ceiling support framing.

3.11 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.



- B. Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensures gypsum board assemblies are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09255

